Volume 9, number 11 December 1988

Happy Holidays

Newsline

RECEIVED 12 Economic Development Library

New research department established

The Alberta Research Council's Industrial Technologies Department has been split into two new departments to better address the needs of Alberta industry – a forestry research department and a materials and testing department (not yet named).

According to Dr. Clem Bowman, president of the Alberta Research Council, these changes are very important to the organization's future success.

"This move will markedly improve our relations with our industry and provincial government sponsors. We are all aware of the growing importance of the forestry industry to Alberta. In addition, new materials and advanced analytical, testing, machining and manufacturing techniques for these new materials, will become increasingly important to Alberta's industries."

The new forestry research department includes the previous Forest Products Program, together with various technologies related to forest management and processing. Peter Williams has been appointed head of this department, which is now part of the Natural Resources Division under Dr. Bob Fessenden. An industry/government Policy and Program Committee will be established to guide the new department, initially under the chairmanship of Mr. Fred McDougall, Deputy Minister of Forestry, Lands and Wildlife.

Dr. Bowman says that advanced materials also have been identified as an important component of Alberta's science and technology strategy, and that the Research Council needs to organize

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Finance/forestry appointments announced

Two new department heads have recently been appointed at the Alberta Research Council. Mavis Legg is now director of the Alberta Research Council's Financial Services Department and Peter Williams is head of the new forestry research department.

Mavis started her career with McDaniel Consultants (1965) Ltd. in 1970, supervising engineering technicians who were involved in the preparation of reserve evaluations and revenue projections for oil and gas companies.

Mavis Legg

She obtained her Bachelor of Commerce in 1980 and went on to article with Coopers & Lybrand, an international firm of chartered accountants. While with this firm, Mavis obtained her designation as a chartered accountant. Prior to joining the Alberta Research Council in 1987, she spent two years as controller with Pepco Pipe End Prep. Co. Ltd.

Previous to her appointment as director of the Financial Services Department, Mavis was supervisor of financial analysis. In this position, she was responsible for the budget process, including the preparation of the budget submission to the Management Committee, the Board of Directors and the Provincial Treasurer. She also reviewed revenue contracts from a financial perspective and assessed the financial strength of potential Joint Research Venture Program participants.

In her new position, Mavis will be responsible for ensuring that the Financial Services Department fulfills its mandate to provide high quality financial advice to the research departments.

Peter Williams

Peter Williams has put his extensive management and government and industry liaison experience to good work since joining the Alberta Research Council in 1980.

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Newsline is a monthly publication for the employees of the Alberta Research Council.

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and direct all questions to
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COUNCIL

Food for thought - part II

Continuing where we left off in last month's issue, the following are additional examples of issues that staff have to date raised with Dr. Clem Bowman, president, during their Wednesday morning meetings.

Issue – As departments have to carry forward deficits from one year to the next, they should also be allowed to carry forward surpluses. Surplus funds should be available to the departments for business development purposes.

Response – Inconsistency in the way surpluses and deficits are handled has been recognized for some time – especially in light of the new emphasis on decentralization of authority to the department level. Departments are now allowed to carry over surpluses and deficits – $1.3 million in surpluses were carried over into the current fiscal year.

Issue – New space is needed for forest products equipment and a proposal for an addition to the Mill Woods building was presented. This proposal also was submitted to the Management Committee through the normal route.

Response – Several alternative building proposals have been identified, and the one which best meets the requirements has been incorporated in our 1989 request to Alberta Public Works, Supply and Services. This building has been given number one priority by Research Council management in our list of capital requests.

Issue – Surface water engineering should receive higher priority in the province.Water should be looked upon as an important economic resource.

Response – The provincial consciousness on water has escalated in public consciousness with the serious drought this past summer. The economic value of water also has been emphasized in the free trade debate. The need for additional funding for water research will be discussed with the Research Committee and appropriate action taken.

Issue-- Planning should start to define the long-term location for the Alberta Geological Survey.

Response – The completion of the Mill Woods building represented a major commitment by the government to research in Alberta. The construction of our new administration building at Clover Bar will solve a serious facilities deficiency. Another priority for the Research Council is to determine the best way to consolidate the activities of the Natural Resources Division and a planning study has been incorporated in the 1989 capital budget. Any new facility would not be constructed until the following year at the earliest, but the first step has been taken.

Issue – Several safety-related issues were identified that require capital expenditures to correct.

Response-- These items have since been brought forward as part of the capital budget and have been assigned top priority by Research Council management.

Issue – The communications link from Devon to Mill Woods is poor. The most problematic area is the MSA system, where users may get "kicked off" with no warning.

Response – The problem is with the telephone lines. We have been able to minimize this by installing error-correcting modems, which so far are satisfactory.

Issue – Technologists are ranked by professional staff only and it was recommended that a broader ranking process be adapted, involving peers as well as supervisors.

Response – This concept has been discussed further by the Management and Research Committees. A test is being run within the Research Council with the assistance of a consultant.

Scientific research tax credit defined

– by Gordon D. Sustrik and Murray F. Tait, Emery Jamieson, Barristers and Solicitors

Recent Tax Court Decisions have been introduced regarding the eligibility of a project for deduction as scientific research expenditures. We invited Gordon Sustrik of Emery Jamieson to outline what these decisions are, and their implications to Alberta Research Council staff in terms of planning, implementing, documenting and retaining records of work conducted for industrial clients.

The Income Tax Act allows a taxpayer to deduct from its business income, amounts expended on scientific research and experimental development. Regulation 2900 of the Income Tax Act defines scientific research and development as requiring the activities of a "systematic investigation or research carried out in a field of science or technology by means of experimental analysis."

In addition, Regulation 2900 sets forth three categories of scientific research and experimental development:

"(a) basic research, namely, work undertaken for the advancement of scientific knowledge without a specific practical application in view,

(b) applied research, namely, work undertaken for the advancement of scientific knowledge with a specific practical application in view, or

(c) development, namely, use of the results of basic or applied research for the purpose of creating new, or improving existing materials, products or processes."

Revenue Canada has established guidelines it follows to determine whether a particular expenditure qualifies for this scientific research deduction. These guidelines indicate that the expenditure must be for research:

1. undertaken to generate information to

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Tax credits

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advance the understanding of scientific relations or technology;

2. where the outcome of the research project or route to be taken to reach a particular outcome is not known at the beginning of the project and cannot be known without the use of a program of scientific research;
3. which incorporates a program of systematic investigation and includes hypothesis formulation, testing by experimentation and formally stating logical conclusions; and
4. which is done by qualified personnel who have some expertise in science, technology or engineering, and who are responsible for the research project.

These guidelines are very broad in nature and enable a wide range of experimental projects to qualify for the scientific research deduction. For instance, in addition to what is commonly called "pure scientific research", the costs of planning, building, manufacturing and testing a prototype model for a project which meets the criteria set out above may also be eligible for the deduction.

Prior to this year, the Courts have given very little consideration to determining what a taxpayer must do in order to qualify for such a deduction. In a recent case (*Sass Manufacturing Limited* v. *M.N.R.* (1988) 88 DTC 1363) the Tax Court of Canada wrestled with this problem – five years after the company had completed its scientific research.

The Court determined that in order to qualify for the scientific research deduction, a corporation must make an expenditure on scientific research and must have sufficient evidence to support its claim that the scientific research was carried out. The Court determined that the corporation must produce clear written evidence that the research project met the Revenue Canada Guidelines. Specifically, the corporation must have written evidence indicating that:

1. controlled experiments were carried out;
2. there was a stated hypothesis and the research project increased the knowledge of the subject matter of the hypothesis; and
3. repeated experiments were carried out and the changes and results of each were carefully noted.

The Court stated:

"Regulation 2900 requires [a taxpayer] to adduce cogent evidence of such investigation or search. Systematic investigation connotes the existence of controlled experiments and of highly accurate measurements and involves the testing of one's theories against empirical evidence. Scientific research must mean the enterprise of explaining and predicting and the gaining knowledge of whatever the subject matter of the hypothesis is. This surely would include repeatable experiments in which the steps, the various changes made and the results are carefully noted."

The end result of this recent decision is that in order for an expenditure to qualify for the scientific research deduction under the Income Tax Act, the corporation must have in its possession sufficient written materials to clearly establish that such a research project was actually carried out and to establish that the project fell within the Revenue Canada guidelines.

Although the Alberta Research Council is partially exempt from federal taxation, the *Sass Manufacturing Limited* case demonstrates that it is very important for the Alberta Research Council to prepare and maintain proper and complete records of all scientific research and development undertaken for all clients. By preparing and retaining these records, the client will have the evidence necessary to support a claim for a scientific research and experimental development deduction.

Staff notes

Dr. Clem Bowman, president of the Alberta Research Council, is the first recipient of the Karl A. Clark Distinguished Service Award, sponsored by the Alberta Oil Sands Technology and Research Authority (AOSTRA), for his contribution to the development of Alberta's oil sands. In addition to a plaque and a certificate, a contribution of $10,000 was made to the University of Alberta Endowment Fund to establish a scholarship in his name.

★ ★ ★

Betty Ann Snyder, formerly manager of the Advanced Technologies Department's Industrial Liaison Group, has been transferred to the Joint Research Venture Program in Calgary. She also will be assisting the Oil Sands and Hydrocarbon Recovery Department and the Alberta Geological Survey with some of their business development activities in Calgary.

★ ★ ★

Fred Noppers, Financial Services, has been appointed as an Accounting Officer for the Alberta Research Council.

★ ★ ★

Dr. Alan Sanger, Coal and Hydrocarbon Processing Department, was recently appointed chairman of the Chemical Institute of Canada's Catalysis Division for a two-year term.

★ ★ ★

Linda Schmidt, Financial Services, was recently awarded a Certificate in Personnel Administration after successfully completing three years of part time study at the University of Alberta, Faculty of Extension.

★ ★ ★

Donna Pelzman, Financial Services, was awarded a Certificate in Computers and Business Data Processing. She also completed her courses over a three-year period at the University of Alberta, Faculty of Extension.

★ ★ ★

Dr. Robert Heimann, materials and testing, hosted an Industrial Wear and Wear Protection Seminar and Workshop October 27. Some 65 representatives from the oil and gas, metal protection, forestry, chemical and consulting industries, as well as guests from the Alberta Laser Institute, the Northern Alberta Institute of Technology, the University of Alberta and the Centre for Frontier Engineering Research were on hand, allowing for a useful dialogue among users and producers of wear protection equipment, as well as researchers at universities and government research organizations.

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Space workshop set for January

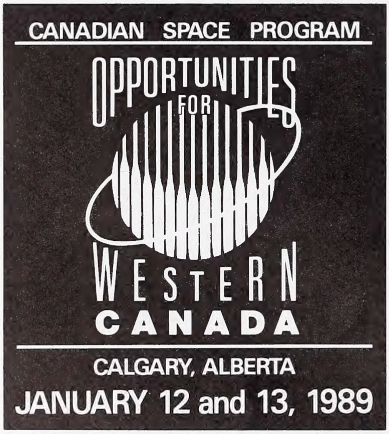
"The Canadian Space Program: Opportunities for Western Canada" is the title of a workshop to be sponsored jointly January 12 and 13 by the Department of Technology, Research and Telecommunications and the Alberta Research Council.

To be held at the Marlborough Inn in Calgary, the conference is expected to attract 200 delegates from British Columbia, Alberta, Saskatchewan and Manitoba.

Participants currently involved in the space program from private industry, provincial and federal government agencies and universities will identify opportunities and discuss Western Canada's role in the Canadian space program. They also will outline the industrial and research opportunities now open to Western Canadian companies, research organizations and universities as a result of the recently expanded program.

Speakers from the Alberta Research Council include Dr. Clem Bowman, president, who will give a presentation on the participation opportunities with provincial research organizations.

Dr. Ernest Chang, Advanced Technologies Department, will chair a session on the opportunities in software and artificial intelligence, and Dr. Brad Thompson, Biotechnology Department, will lead a discussion on the opportunities available in the area of biosciences in space.



Representatives from the Western Canadian industrial partners in the Space Station project – MacDonald, Dettwiler and Associates Ltd., Vancouver, and SED Systems Inc., Saskatoon – will speak on priorities and projects in their companies.

Speakers from Spar Aerospace Limited, the prime contractor for the Space Station, will summarize Canadian participation in the Space Station and present a business strategy to enter the Canadian space industry.

Workshops will cover specific technical opportunities in space such as: space hardware design and manufacturing; software and artificial intelligence; space science; remote sensing and communications; automation and robotics; microgravity instrumentation; and biotechnology.

The conference will close with a plenary discussion on the development of action plans to capitalize on the opportunities for Western Canada.

New appointments

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At that time, he participated in provincial task forces and working groups in electricity supply, electronics, telecommunications and microelectronics. Later, as head of Program Development, he acted as the focal point for business development at the Research Council and organized a coordinating/assessment committee.

In 1985, Peter took the position of special assistant to the vice-president, Applied Sciences Division, working on contract and audit issues related to the forest products area.

Since 1986, he has headed the former Industrial Technologies Department. In that position he pulled together a number of widely scattered research, testing and analytical groups; established a new initiative in the area of advanced materials; and increased the level of national and international accreditation and recognition for the Gasoline and Oil Testing Laboratory, the Forest Products Testing Laboratory and the Industrial Services Laboratory.

He also was involved in forest products research and development through government liaison, contract development, market acceptance, codes, standards and the international recognition of the Research Council's forest products capabilities (including finalizing the negotiation of a cross certification agreement with the American Plywood Association).

Peter holds a Master's Degree in Electrical Engineering from the University of Aston (Birmingham, England) and was, for many years, a specialist in the planning, design and testing of electrical transmission systems.

New department

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itself to participate fully in this important area of research.

The new materials and testing department encompasses the balance of the previous Industrial Technologies Department, as well as new initiatives to be developed in the area of advanced materials. A department head has not yet been appointed to manage this department.

Employee changes

We welcome to the Research Council: **Marco Ariano,** Advanced Technologies; **Fred Collins,** Administrative Services; **David Flemming,** Materials and Testing; **Gail Grout,** Information Services; **Breen Liblong,** Advanced Technologies; **David Mason,** Advanced Technologies.

We say goodbye to: **Lorna Carr, Len Force, Lynda Jones.**